

**UPPER CLARK FORK WORKING GROUP
ONLINE ZOOM MEETING
MARCH 18, 2020**

Hosts: University of Montana: Maury Valett, Division of Biological Sciences
Geum Environmental Consulting: Tom Parker, Principal Ecologist.

Participants: Maury Valett (University of Montana)
Doug Martin (NRDP)
Nathan Cook (FWP)
Alex Leone – (CFC)
Randy Apfelbeck (MT DEQ)
Andrew Hauer – (EpSCOR)
Jose Sanchez – (MSU)
Rafael Feijó de Lima – (CREWs)
Marisa Sowles (Geum)
Tom Parker (Geum)

The Upper Clark Fork Working Group (UCFWG) is a collaborative with the mission to ‘...facilitate, produce, analyze, and share science-based knowledge among key participants involved in the remediation, restoration, research, and monitoring of the Upper Clark Fork River and its tributaries’ (UCFRWG Strategic Plan 2019).

1. WELCOME AND OVERVIEW

Meeting Objectives:

- Review new UCFWG.org web site and associated resources to support information sharing
- Review mental models/ working hypotheses that underlie our shared understanding of the Strategic Plan elements
- Identify purpose, roles and leadership of sub-groups
- Identify specific actions being implemented by each core UCFWG member organization in 2020
- Identify next UCFWG meeting date, location and focus

Maury provided a reminder that the Strategic Plan is a living document and that modifications can and should occur as the group learns more about the Clark Fork and participates in the process of identifying goals for the Clark Fork and how we can collaboratively move towards those goals.

Doug discussed the long-term timeframe and value of the work proposed by the Upper Clark Fork Working Group. This collaborative effort can set the groundwork for the next generation.

2. UCFWG.org

Andrew provided a tour of the website and is looking for additional photos to incorporate. The website includes e-mail contacts for various members and participants of the UCFWG, the Strategic Plan in an interactive format, workshops and meeting summaries and a map and data portal to view existing data within the Clark Fork.

Google Analytics will track website traffic to help us understand who is using the website and also what information they are most interested in. Because this website has not been advertised, there is currently not a lot of traffic.

Tom Parker walked the group through a document sharing webpage accessible at:

http://ucfwg.geumserver.com/gdm/public_html/index.php.

User Name: user_ucfwg

Password: user_ucfwg

Once logged in, this site provides access to a web map with examples of available, published spatial data related to the Upper Clark Fork watershed, and a few documents related to the UCFWG's activities and focus (and an upload function where you can add other documents):

There is potential to use this as a platform to support the Strategic Plan goal to "Improve information management and sharing among the UCFWG and other entities doing research, restoration and remediation in the UCFR basin." (Goal D). It is also possible to share maps and documents via web links. The internal communication sub-group will continue to discuss appropriate uses for these tools and integrate them into the ucfwg.org website as needed.

Marisa described the feedback map from the October Workshop meeting generated from the sticky notes placed on posters. The sticky notes are categorized by data status (i.e. existing, on-going, data gap) as a way to demonstrate how this information can be used to inform the Strategic Plan and continue to support outside interests. Several sticky notes included questions related to specific concerns or interests within the Clark Fork Basin.

1. Is habitat a limiting factor to the recovery of the Silver Bow Creek fishery?
2. Is habitat a limiting factor to fishing in the UCF?
3. What are the limiting factors for fish populations? WRT recent population trends in UCF below Warm Springs Ponds.
4. Can long-term patterns of trait expression be used to indicate biology?
5. How will treatment of Berkeley Pit water affect Silver Bow Creek ecology?
6. What are the water quality and quantity limitations caused by Warm Springs Ponds, especially impacting the fishery?
7. How can water be managed at Warm Springs Ponds to benefit water quality and fish populations downstream?
8. What is the influence of heavy metals on biological processing?
9. How do factors effecting primary production contribute to metal exposure to primary consumers?
10. What are the causal factors of the recent fish kill?
11. What are the nitrogen sources and movement mechanisms at Dutchman Flats?
12. What are the streamflow patterns annually between Galen and Deer Lodge?
13. What is the breakdown of irrigated acres in the UCF?
14. Where are anglers fishing? For what species?

Website next steps and feedback

- **All**, please send any Clark Fork photos you have to Andrew (Andrew.Hauer@mso.umt.edu) for the website.
- **All**, please review participating and partner organizations at the bottom of the website homepage and let the group know if there are any missing organizations.
- **Andrew** will add a forum to facilitate conversations about projects and data between agencies and partners.
- **Geum** will incorporate project descriptions to appropriate data sets in the online map to make it more apparent to users how a data set might be relevant to them and their interests (**April 30, 2020**)

For further discussion by the internal communications subgroup.

- Consider embedding the document sharing webpage.
- Consider incorporating a way to download the spatial data from the map portal.
- Maintain the website as a comprehensive data sourcing resource rather than a data housing resource. That is, provide links to other sites and organizations who house the data rather than have the data available on this particular website.
- Determine a QA/QC process to vet data in some way to ensure the data on the website (specifically the spatial map) are reliable and creditable, perhaps via a protocol that is administered by the sub-groups.
- Ensure we continue to update the website so that it is an accurate reflection of what people are doing and providing people with what they need.
- Discuss the need and options for advertisement of the website.

3. STRATEGIC PLAN GOALS AND WORKING HYPOTHESES

Tom and Maury: These working hypotheses can also be thought of as a mental model (i.e. what are the ways that we think the system works?). These are not testable hypotheses in the traditional sense. Instead, because the UCFWG is a place where science and management can come together, the hypotheses provide a scientific framework to guide research and on the ground actions that help justify and prioritize allocation of funding and keep work on the Clark Fork focused and moving forward. The “matrix” (excel spreadsheet) also shows how some of the management objectives from the NRDP Restoration Plan for the Clark Fork align with the UCFWG Strategic Plan. The hypotheses directly relate to actions that are happening or will happen.

The group reviewed the Strategic Plan goals, objectives and associated hypotheses to determine if the hypotheses are supported by all group members and if there are missing hypotheses.

In reviewing **Goal A (Water Quality)**:

- Maury pointed out that P loads are coming into the Clark Fork at Gold Creek, up of Flint Creek.
- Alex mentioned Brock (Phosphorus) Creek also contributes P (upstream of Flint Creek)
- Doug noted that there is a strong emphasis on nutrients in the working hypotheses, but that metals are also part of the objective and there should more of a specific focus on metals not just in the water, but also in the floodplain (Objective A-2).
- Tom also suggested a focus on the interaction of nutrients and metals.

- Randy added the mercury concern in Flint Creek.
- Nathan suggested the potential to focus Goal A more specifically on the biogeochemistry (as supported by the working hypotheses, and leave the food web aspect for Goal C.

All agreed on the potential to revise Goal A and potentially break it into two goals to represent nutrient and metals separately. Also consider moving the food web reference to Goal C (Habitat).

Goal B (Hydrology) – Okay pending feedback from individuals via the matrix.

Goal C, Objective C-1 (Habitat) is consistent with CFC’s mental model and work.

Maury pointed out that **Goal C, Objective C-2 (Food web)** does not address the interaction of productivity and metals and that there are actually two different theories that might fit under this Goal, productivity propagation hypothesis vs. bloom dilution hypothesis.

Goal D (Communication) – Okay. Specify that this is internal and technical communication support. There is also a need for external communication and interaction with stakeholders such as landowners and individuals interacting with the Clark Fork landscape regularly.

Goals and Working Hypotheses next steps and feedback

- **Doug and Maury** will coordinate to review the Strategic Plan goals, reorganizing as needed.
- **All** review the matrix/spreadsheet and edit or add hypotheses in a colored text and send to Marisa (msowles@geumconsulting.com) to compile by **March 25, 2020**. Marisa will follow up directly with each participant to make sure everyone has a chance to provide feedback.

4. SUB-GROUPS

Maury described the role of the sub groups as a way to break down the bigger picture of the Strategic Plan and provide more focused tasks and activities.

The group acknowledged that the sub-groups add a layer of administration and commitment, but that the commitment is really to share what work you are doing already and what you plan to do in the near future with others. The sub-groups begin with existing projects and can provide direct benefits to help individuals move toward their goals. To make sure the sub-groups are successful and effective, there needs to be a framework for regrouping on a regular basis to share information and that starts with a point of contact for each group.

Sub-Group Leaders

- Hydrology: Brian Bartkowiak (NRDP)
- Habitat: Nathan Cook (FWP)
- Metals/Nutrients: Maury Valett (UMT)
- Food Web: Rafael Feijó de Lima
- Communication Tools: Andrew Hauer (EpSCOR)
- Communication and Outreach: Alex Leone (CFC)
- Flint Creek: TBD

In light of the potential reorganization of the Strategic Plan goals, there was no discussion of specific goals each sub-group would focus on. General comments about how the sub-groups might be used or function:

- Use the group as a sounding board for project proposals or decisions so that they meet not only internal goals but serve a greater need for other sub-groups or organizations. This will develop better projects and could generate new projects that continue to support the overarching goals.
- Help vet priorities (i.e. decision to move forward with Flint Creek Hg project).
- Important to share between groups to make sure work isn't repeated or if work is valuable to another group and also to share successful operational strategies.

Doug recommended a Stakeholder Outreach Group (External Communication) to engage the local public and get their buy in on proposed research and projects. It will be important to have them on board to make forward progress. Maury and Doug will discuss this further to determine what this looks like including leadership roles.

Sub-Groups next steps and feedback

- **Maury and Doug** will discuss the potential for a stakeholder outreach effort.
- **All** - Sub-groups will meet individually within the next few months (to be further discussed in a call among sub-group leaders—Doodle poll forthcoming)
- Include Rafael in Nutrients/Metals and Habitat sub-groups
- Recruit other sub-group members that may not be on the current lists.

4. DISCUSSION OF SPECIFIC CLARK FORK RELATED ACTION

The group decided to set up a second, 2hr meeting by the end of the month for individuals to share specific work related to the Clark Fork for all who are interested and available. Discussions will be summarized and posted or distributed to the group. Doodle poll forthcoming.